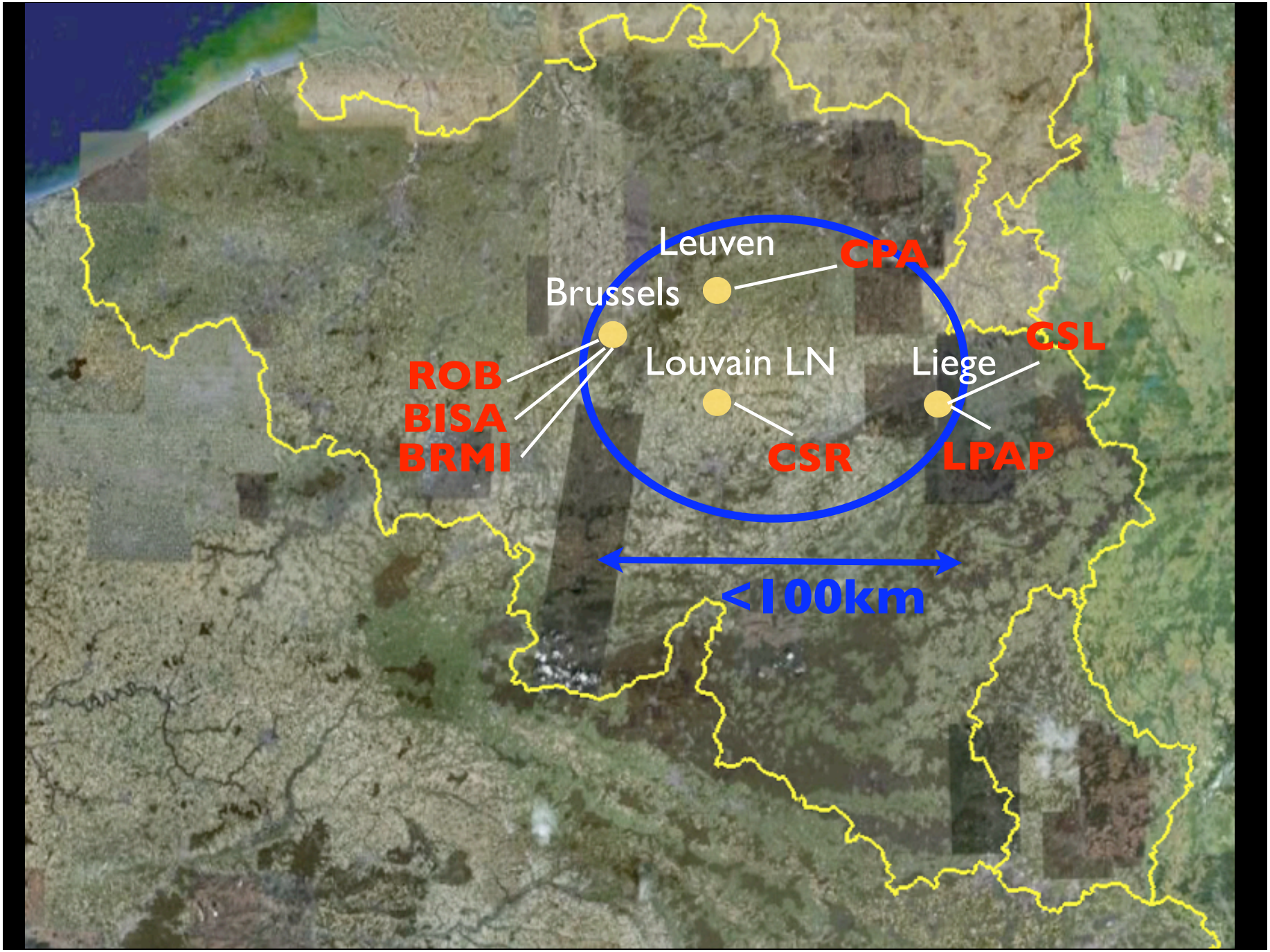
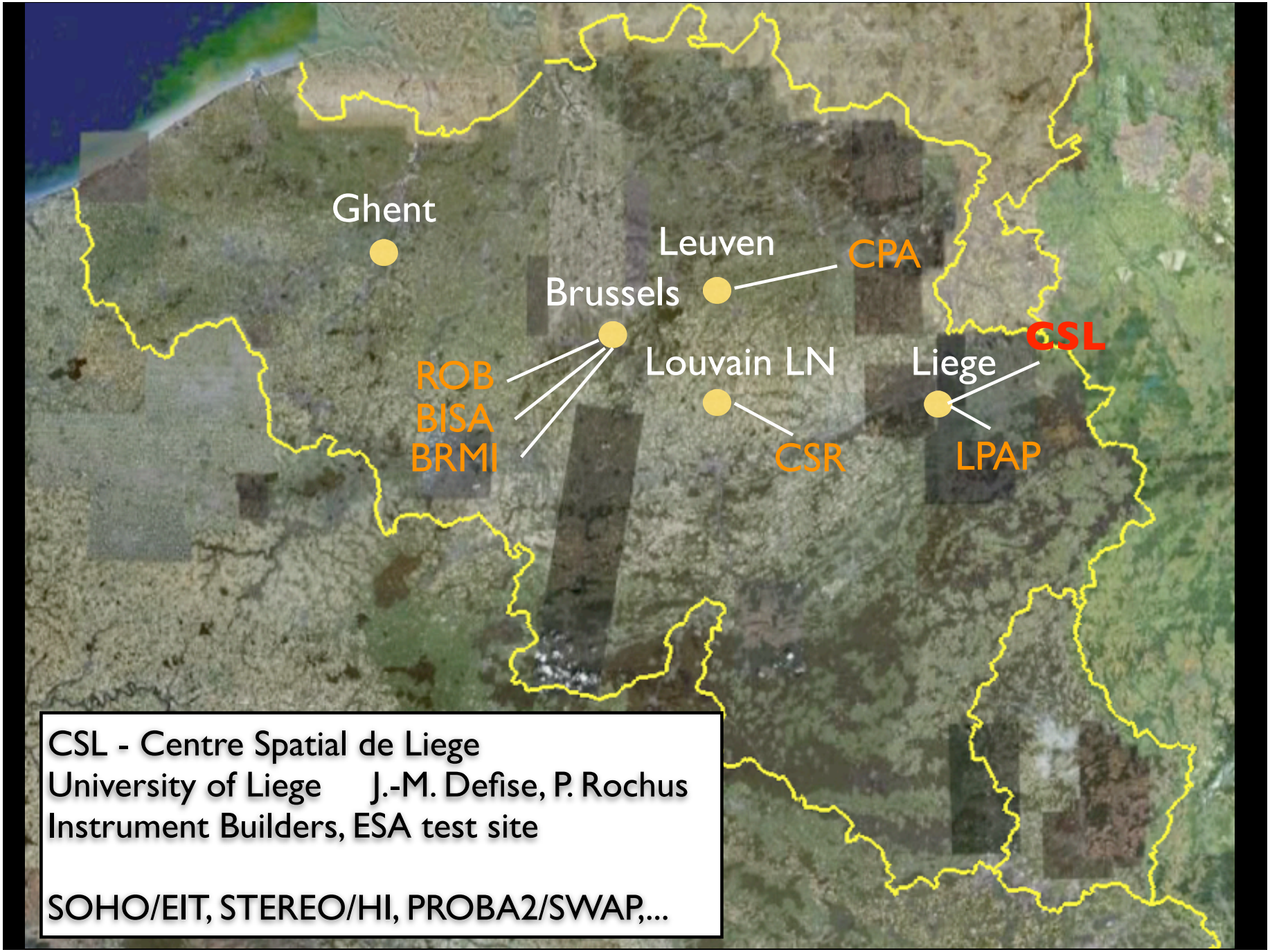
ILWS @ Belgium

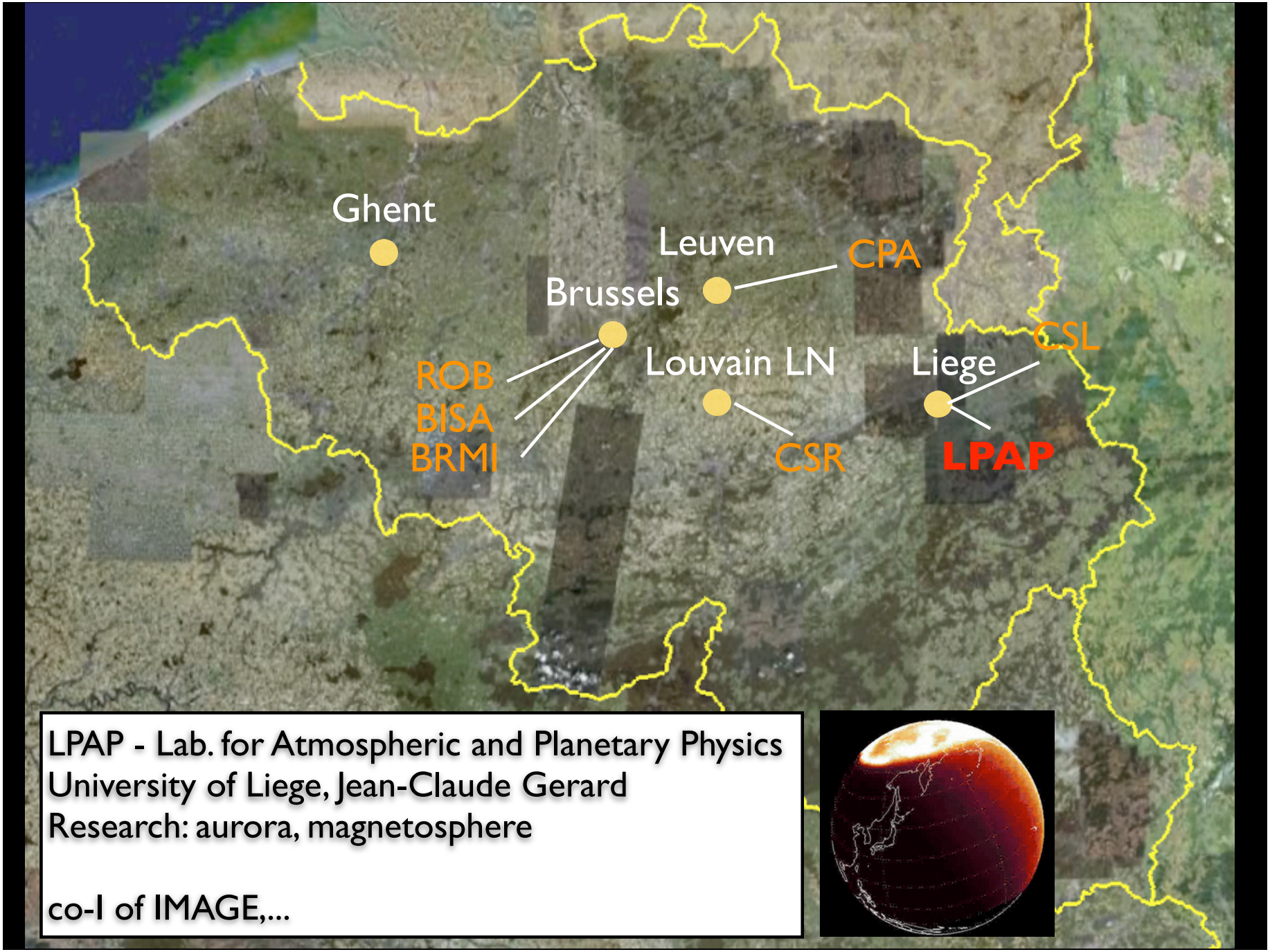
David Berghmans
SIDC-Royal observatory of Belgium


Leuven
CPA
Brussels
CSL
ROB
Louvain LN
Liege
BISA
BRMI
CSR
LPAP
<100km



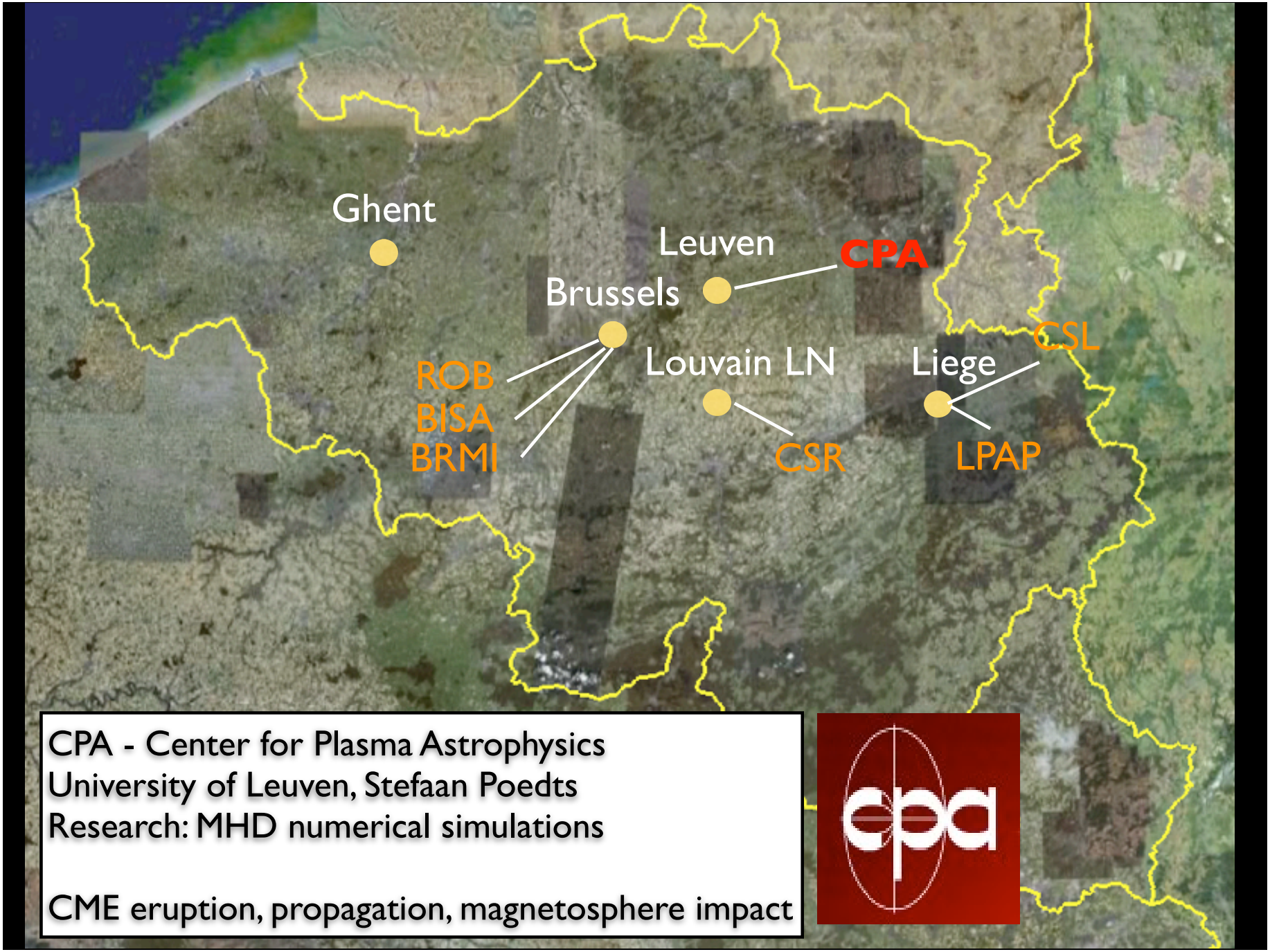
CSL - Centre Spatial de Liege
University of Liege J.-M. Defise, P. Rochus
Instrument Builders, ESA test site

SOHO/EIT, STEREO/HI, PROBA2/SWAP,...



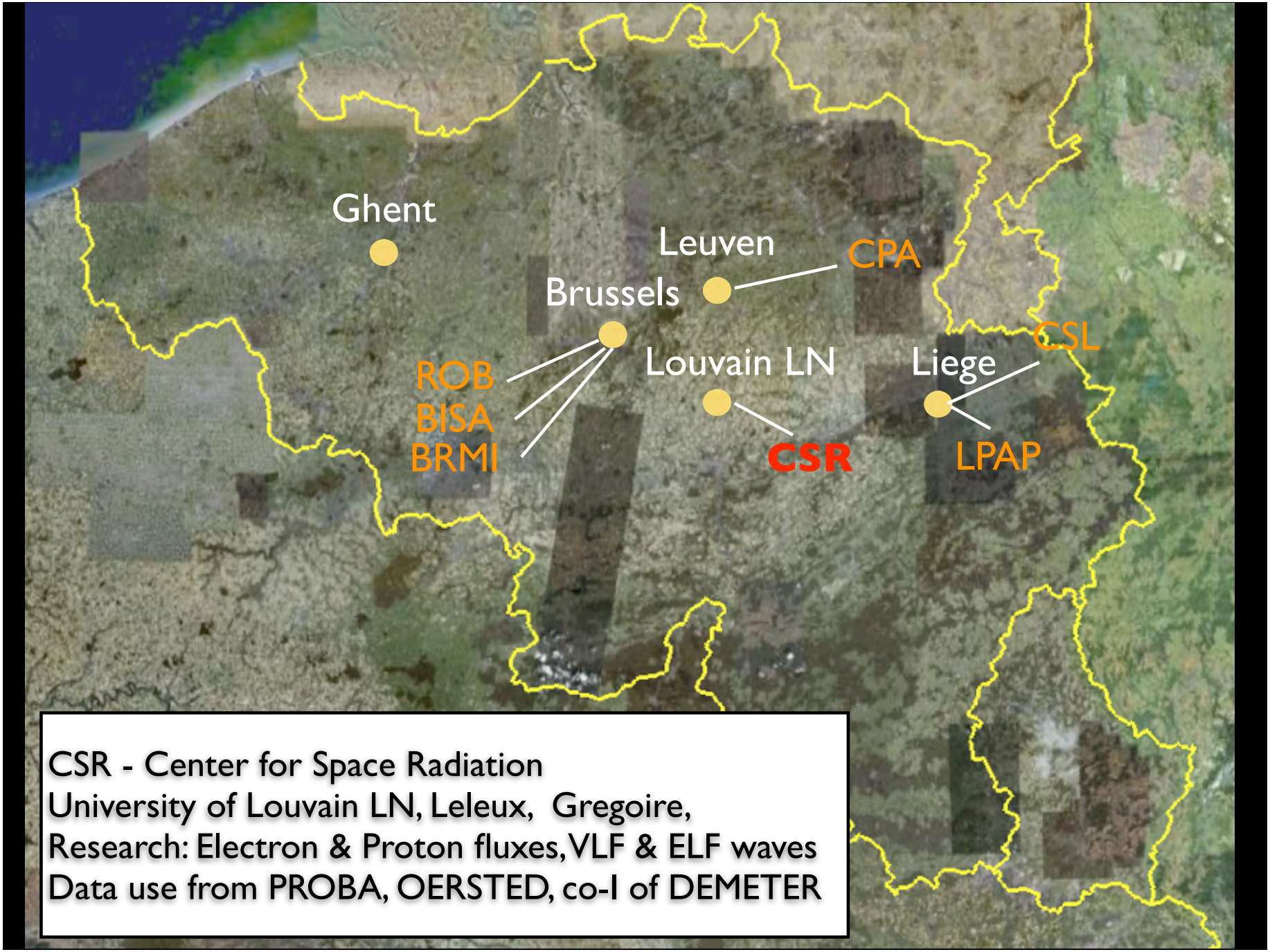
LPAP - Lab. for Atmospheric and Planetary Physics
University of Liege, Jean-Claude Gerard
Research: aurora, magnetosphere

co-I of IMAGE,...

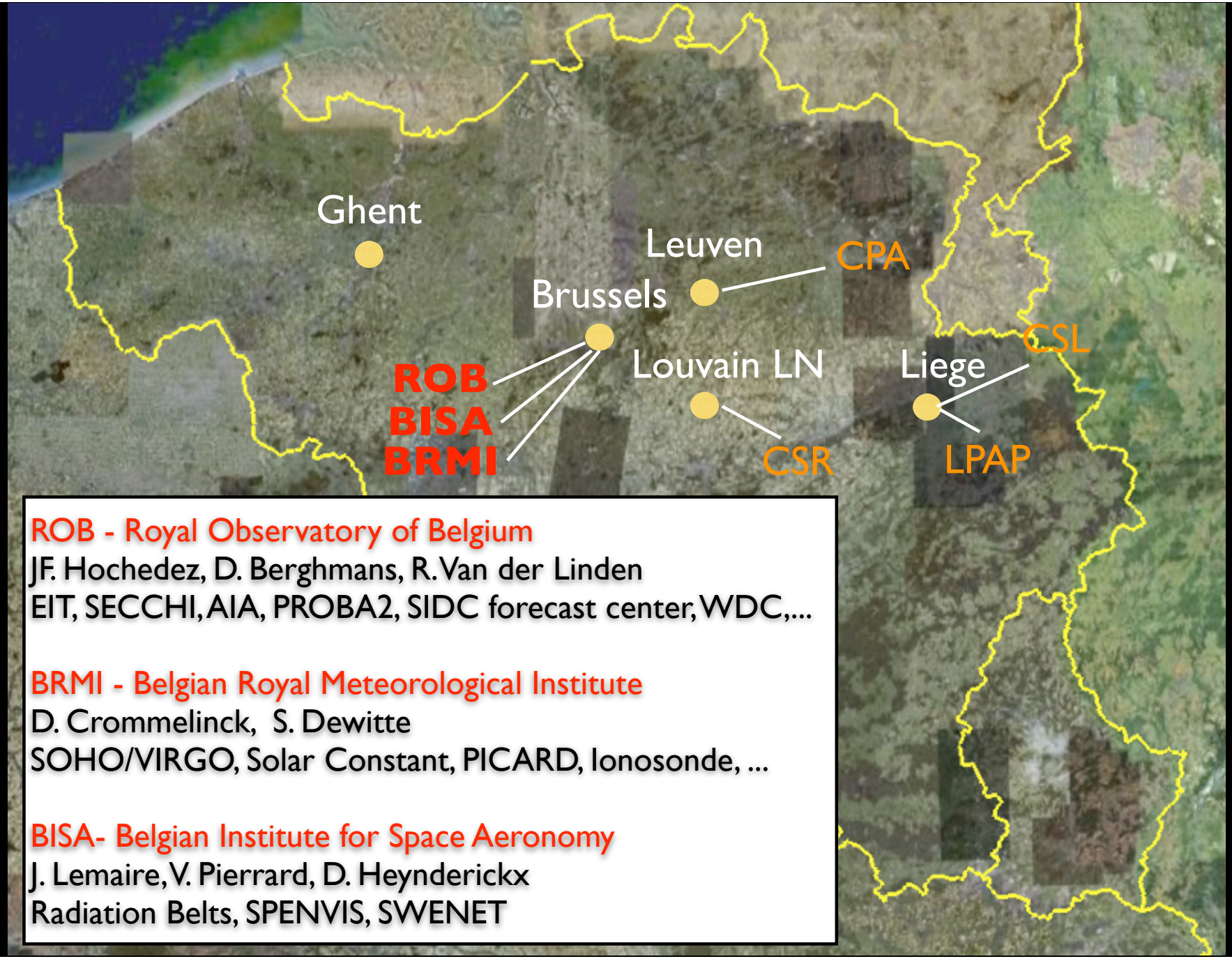


CPA - Center for Plasma Astrophysics
University of Leuven, Stefaan Poedts
Research: MHD numerical simulations

CME eruption, propagation, magnetosphere impact



CSR - Center for Space Radiation
University of Louvain LN, Leleux, Gregoire,
Research: Electron & Proton fluxes, VLF & ELF waves
Data use from PROBA, OERSTED, co-I of DEMETER



ROB - Royal Observatory of Belgium
JF. Hochedez, D. Berghmans, R. Van der Linden
EIT, SECCHI, AIA, PROBA2, SIDC forecast center, WDC,...

BRMI - Belgian Royal Meteorological Institute
D. Crommelinck, S. Dewitte
SOHO/VIRGO, Solar Constant, PICARD, Ionosonde, ...

BISA- Belgian Institute for Space Aeronomy
J. Lemaire, V. Pierrard, D. Heynderickx
Radiation Belts, SPENVIS, SWENET

SOLAR TERRESTERIAL CENTER OF EXCELLENCE (STCE)

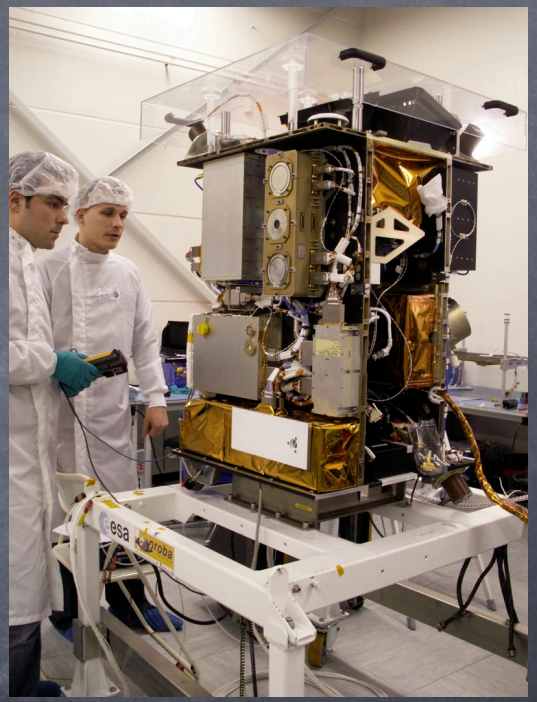
- 'virtual' institute of >100 heliospheric researchers
- collaboration agreement between ROB, BISA and BRMI to jointly plan and conduct their solar-terresterial research and operations
- scale benefit to participate in large EU & ESA projects & missions
- supplemented by Belgian government at + 3.4MEur/year extra resulting in >40 people extra

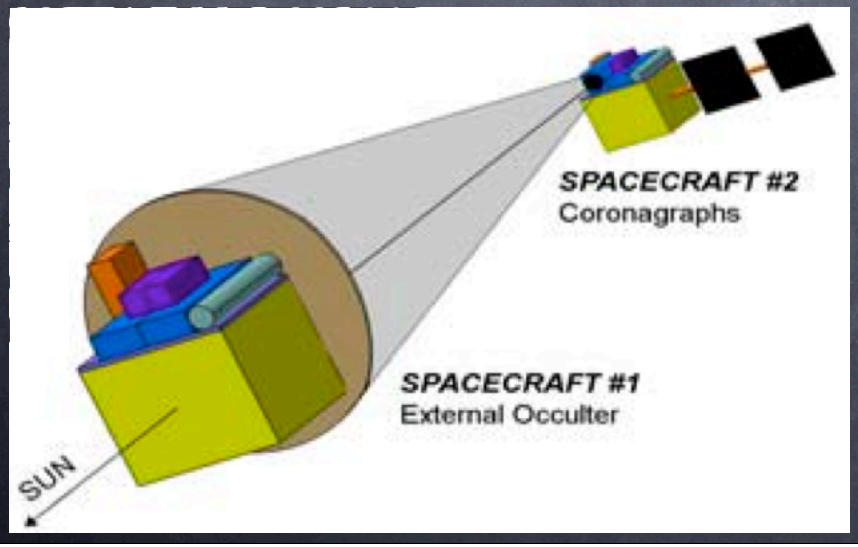
SOLAR TERRESTERIAL CENTER OF EXCELLENCE (STCE)

- RESEARCH: +10 top researchers
  +visiting fellows
- OPERATIONS: operational support existing missions & projects
- SERVICES: space weather & GNSS services
- INFRASTRUCTURE: solar radio monitoring, ground based telescopes, data archives

MISSION PARTICIPATIONS (1/2)

- **PROBA2**, see mission updates
- **PICARD/SOVAP-PREMOS**
- **PROBA3**, in-formation flying coronagraph





MISSION PARTICIPATIONS (2/2)

- **Solar Orbiter** + Sentinels
  LOI for EUV imagers (JF. Hochedez)
- **KUAFU**, launch 2012? (P. Rochus)
  Strong wish to participate in Kuafu A & B
- **Cosmic Vision**, deadline this month
  (small participation in nearly all solar prop.)

Outreach

- publicity STCE & PROBA2
- permanent 'Solar' exhibition at National Planetarium
- "open door days", Oct 6-7 2007
- Fourth European Space Weather Week (Nov 2007, Brussels)
- SOHO-20 workshop http://www.soho20.org

International meetings

- Third European Space Weather Week (Nov 2006, Brussels)
- Fourth European Space Weather Week (Nov 2007, Brussels)
- SOHO-20 workshop http://www.soho20.org (Aug 27-31 2007, Ghent)

The PROBA2 satellite

D. Berghmans, J.-M. Defise, J.-F. Hochedez

CSL- Université de Liège
SIDC - Royal Observatory of Belgium

proba II satellite ESA microsat for technology demonstration

- 60cm x 70cm x 85cm, 120 kg
- 2 (+5?) years mission
- launch 2008/11, together with ESA SMOS (Eurockot, Plesetsk)
- LEO sun-synchr orbit

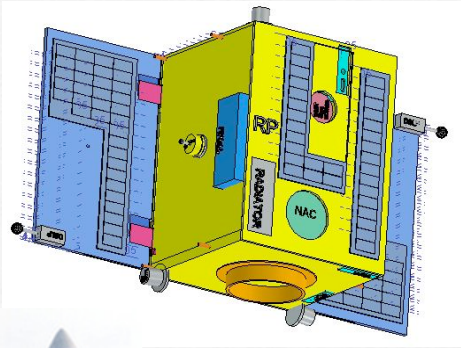
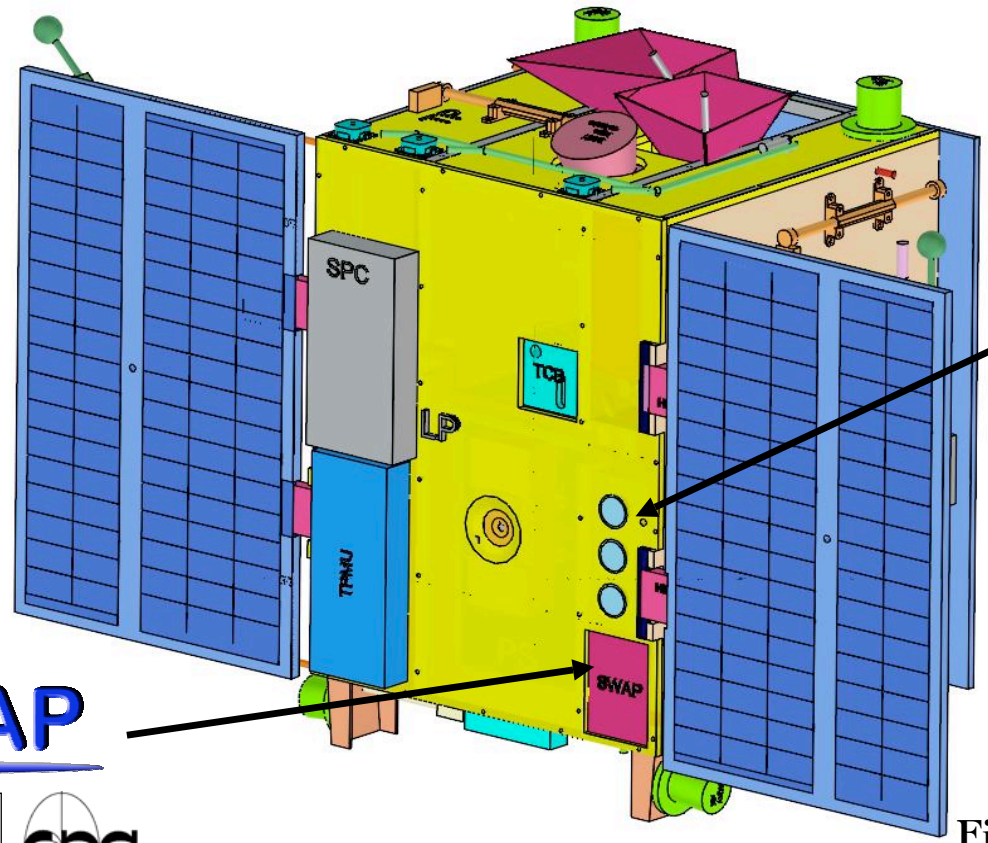


Image courtesy: Verhaert

proba II
satellite

VERHAERT SPACE
A QinetiQ Company



LYRA

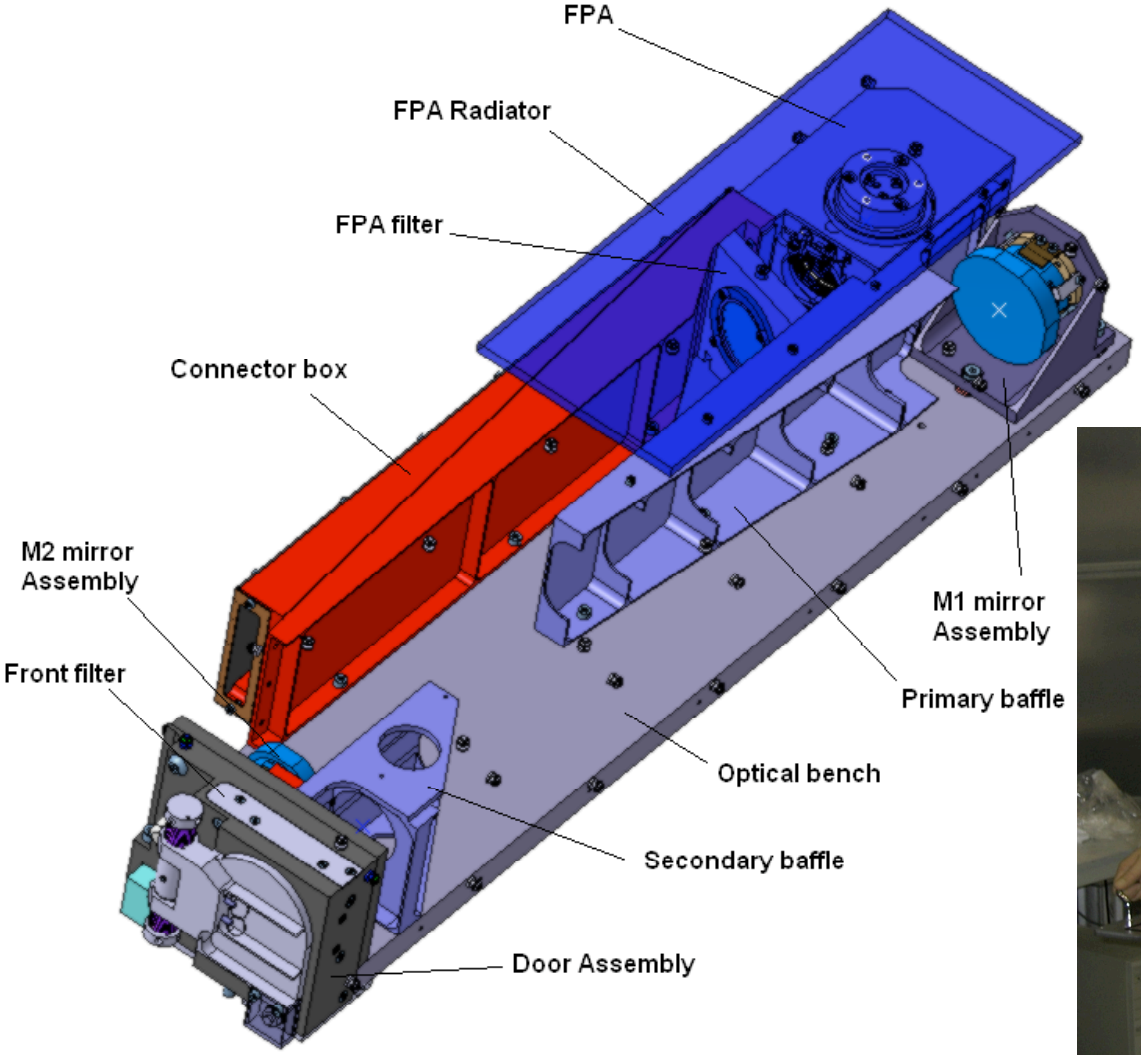
wrc pmod

SWAP

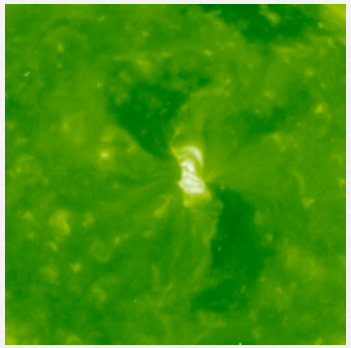
Financed by
BELSPO

VERHAERT SPACE
A QinetiQ Company

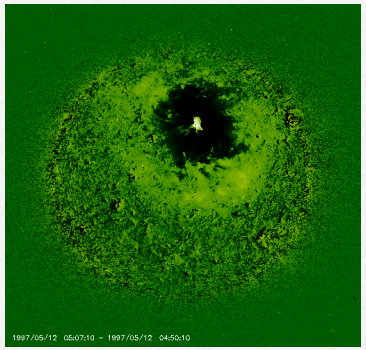
SWAP


FPA
FPA Radiator
FPA filter
Connector box
M2 mirror
Assembly
Front filter
M1 mirror
Assembly
Primary baffle
Optical bench
Secondary baffle
Door Assembly

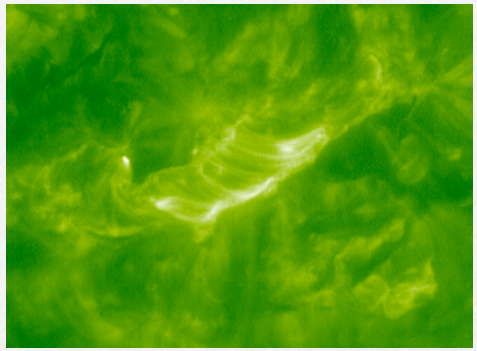
SWAP targets



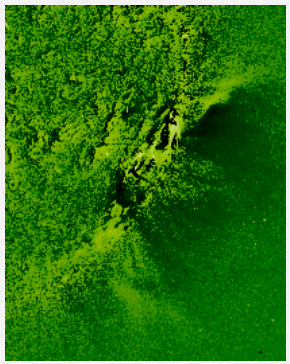
Dimmings



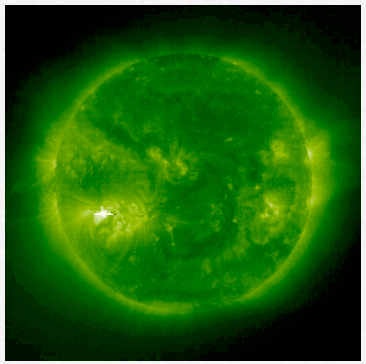
EIT wave



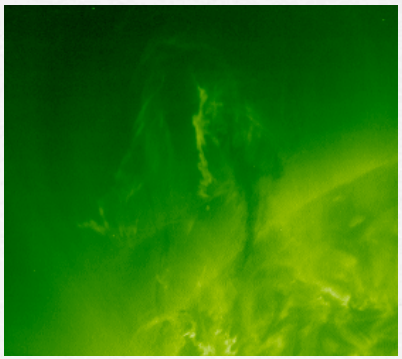
Post-eruption arcade



Loop openings
plasmoid lifting

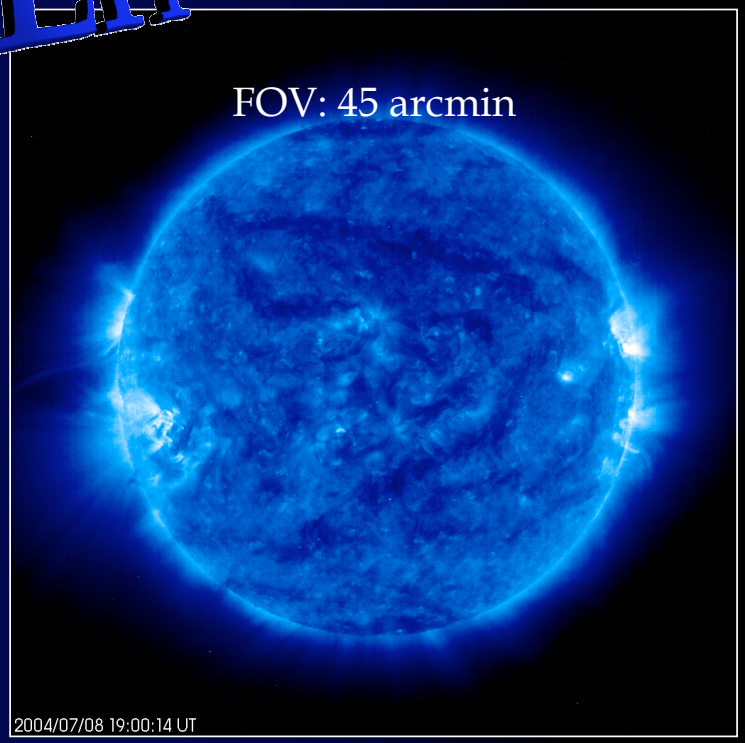


flares



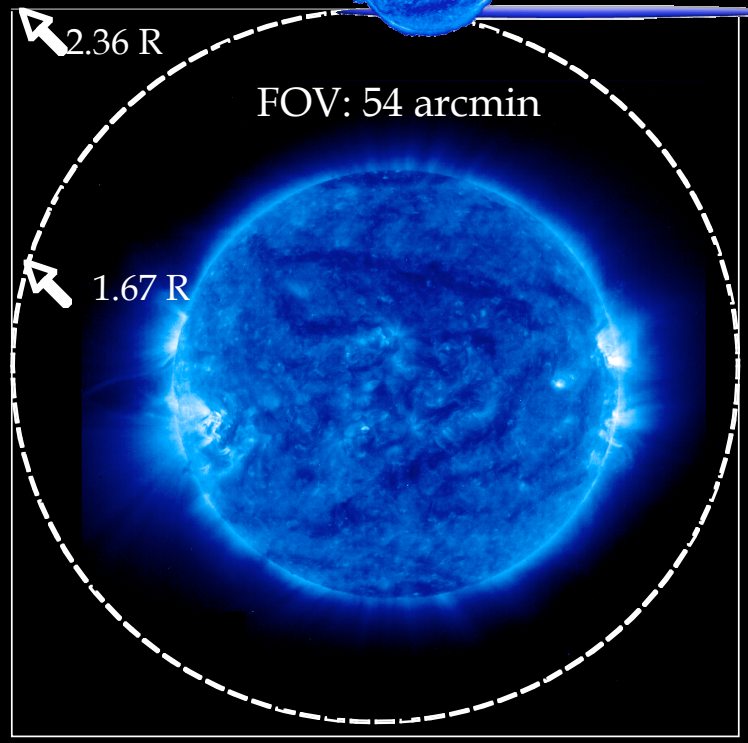
Erupting prominences

EIT



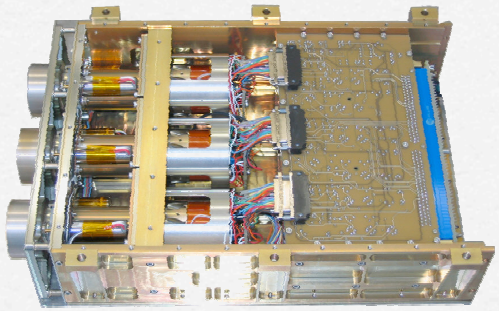
- 17.1nm, 19.5nm, 28.4nm, 30.4 nm
- Fixed sun-centering
- at L1
- 12 min cadence

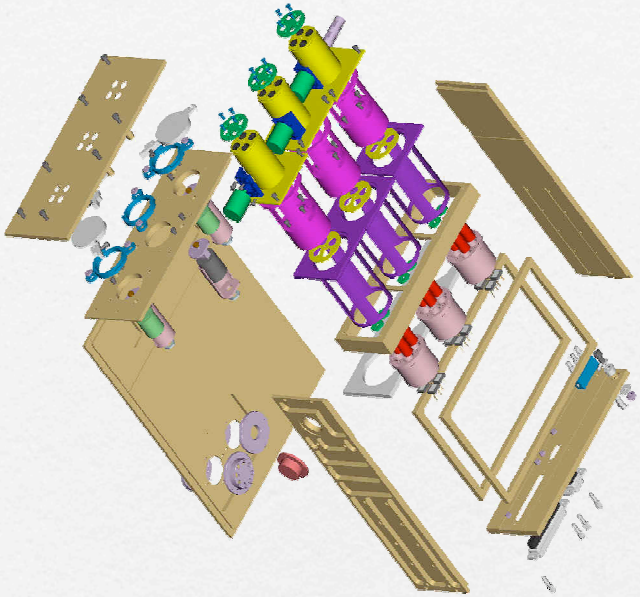
SWAP

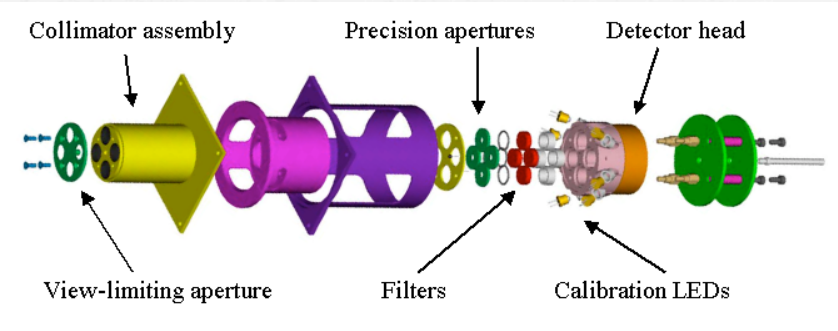


- 17.5nm
- Flexible off-pointing
- Protected by magnetosphere
- 1 min cadence

LYRA







- Dimensions: 32 x 22 x 10 cm³
- Mass: 5 kg Power < 5 W

Channels:
200-220 nm (Herzberg continuum)
115-125nm (Lyman alpha)
17-30 nm (EUV, including HeII)
1-20 nm (soft X-rays)

ESA D/SCI support

- favorable orbit for solar observing
- science merits recognized, part of ILWS
- ESA instrument scientists
- increased telemetry
- Science Consortium for SWAP and LYRA